United States Department of Agriculture

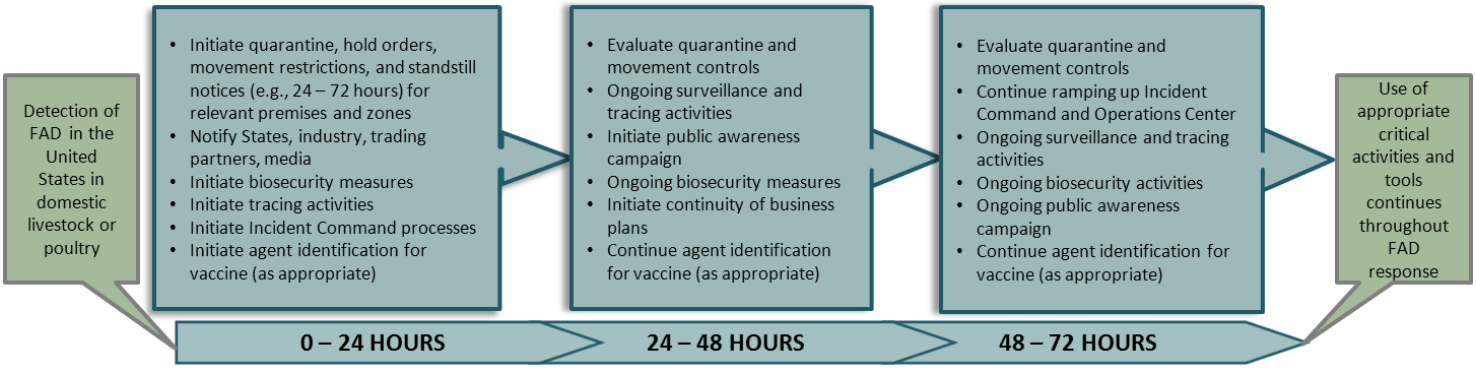
Foreign Animal Disease (FAD) Response
Ready Reference Guide—
Critical Activities and Tools during an FAD Response

In order to achieve the USDA, Animal and Plant Health Inspection Service (APHIS) goals of a foreign animal disease (FAD) response, critical activities must be implemented. This document provides an overview of these science- and risk-based approaches that will work to protect animal health and public health, and stabilize animal agriculture, the food supply, and the economy in an FAD event. Further information can be found in the associated standard operating procedures (SOPs) and National Animal Health Emergency Management System (NAHEMS) Guidelines.

List of Selected Critical Activities during an FAD Response

- ♦ Surveillance
- ♦ Diagnostics
- ♦ Epidemiological Investigation and Tracing
- ♦ Information Management
- ♦ Communication
- ♦ Health & Safety and Personal Protective Equipment (PPE)
- ♦ Biosecurity
- ♦ Quarantine and Movement Controls
- ♦ Continuity of Business
- ♦ Regionalization for International Trade
- ♦ Mass Depopulation and Euthanasia
- ♦ Disposal
- ♦ Cleaning and Disinfection
- ♦ Vaccination
- ♦ National Veterinary Stockpile (NVS)
- ♦ Wildlife Management & Vector Control
- ♦ Animal Welfare
- ♦ Appraisal and Compensation
- ♦ Modeling and Assessment Tools
- ♦ Federal Emergency Management: National Response Framework (NRF), and National Incident Management System (NIMS)

Timeline of Critical Activities during the First 72 Hours of a U.S. FAD Response



Surveillance

Surveillance activities for an FAD occur throughout the outbreak response. Surveillance plans are intended to (1) define the present extent of the FAD, and (2) detect unknown Infected Premises as quickly as possible. Surveillance information is used to evaluate whether outbreak control mechanisms are working and to provide information for animal and product movement during the outbreak. Surveillance activities will continue to prove disease freedom and regain disease-free status after eradication of the outbreak. For more information and resources on developing a surveillance plan, APHIS employees can find the Outbreak Surveillance Toolbox from the National Surveillance Unit here: http://inside.aphis.usda.gov/vs/ceah/nsu/toolbox/, and for others by emailing national.surveillance.unit@aphis.usda.gov.

Diagnostics

Effective and appropriate sample collection, diagnostic testing, surge capacity, and reporting are critical to an effective FAD response effort. All of these activities require extensive resources. Surveillance plan requirements must be fully integrated with current diagnostic sample collection, sample testing, surge capacity, and reporting capabilities. The National Veterinary Services Laboratories (located in Ames, Iowa and Plum Island, New York) will confirm the index case for any FAD outbreak in the United States. Incident Command will provide specific instructions regarding the direction and collection of samples, including sending samples to the National Animal Health Laboratory Network laboratories during the course of the outbreak.

Plum Island Animal Disease Center

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Epidemiological Investigation and Tracing

Epidemiological investigation and movement tracing during an FAD outbreak are critical activities in controlling, containing, and eradicating the disease. Epidemiology and tracing activities involve identifying cases of disease, locating other animals that may be infected, tracing all contacts with infected animals and premises, and designating zones, areas, and premises. Typically, trace-back and trace-forward activities are conducted for at least two times the maximum incubation period for highly contagious FADs. Tracing activities include all movements onto and off of Infected Premises with consideration given to potential modes of transmission such as aerosol, direct/indirect contact, and potential wildlife contact. Additionally, the epidemiological investigation will help to elucidate the nature and distribution of the disease, risk factors of transmission, and other outbreak characteristics which will in turn shape the response effort, including the extent of regulatory intervention. These activities will be used to evaluate the effectiveness of the control measures. More information on the definitions and sizes of zones and premises is included in a separate ready reference guide.

Information Management

Information management systems at the local, State, Tribal, and Federal level 1) facilitate the collection, management, reporting, analysis, and dissemination of critical emergency response information, and 2) give emergency response providers access to shared, accurate, and timely data needed for decision making. Information, including but not limited to epidemiological information, diagnostic test results, and resource requests, must be available at intervals as prescribed by Incident Command. Effective information management requires robust information technology systems. Some of the systems available include the following: Emergency Management Response System (EMRS), Surveillance Collaboration Services (SCS) System, Animal Health and Surveillance Management, Veterinary Services Process Streamlining (VSPS), and the National Animal Health Laboratory Network system.

Communication

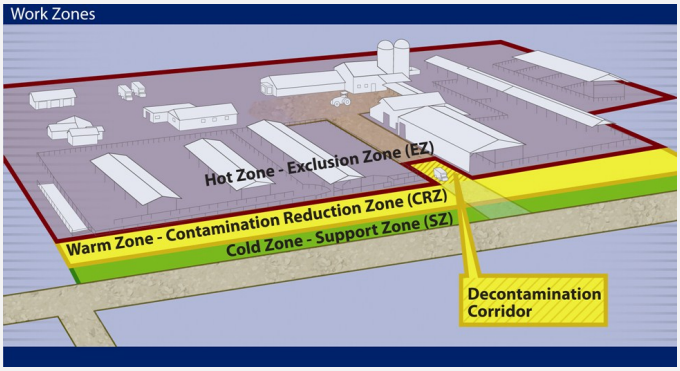
Communication, both among responders and to the public, is critical for a successful response effort. Effective communication involves briefing the media, public, industry, Congress, trading partners, and other stakeholders on the status of the outbreak and actions being taken to control and eradicate the disease. Communication also involves coordinating with Federal, State, and local agencies, Tribal entities, and others to ensure consistent messaging regarding animal health, public health, and food safety. It is imperative that a network of stakeholders and systems for communication are established prior to an FAD incident. More information on communication and key communication messages are included in disease-specific plans and ready reference guides.

Health and Safety and Personal Protective Equipment

During the FAD response any number of physical, environmental, and psychological hazards can occur. The specific hazards encountered will depend on the disease agent, type of activities required, the location, the terrain, and time of year. Physical hazards include animal related incidents, musculoskeletal injuries, and fatigue. Environmental hazards include extreme weather and temperatures as well as insect vectors. Team members could be subject to psychological hazards associated with long, unusual hours and emotional stress from activities like depopulation. If the disease agent is zoonotic, personnel should be aware of transmission risks and avoid unnecessary exposure or implement protective measures (vaccination, where appropriate). Additionally, training in animal handling, proper use of PPE and self-awareness will go a long way to protecting responder health.

Biosecurity

In an FAD incident, biosecurity measures will be implemented to (1) contain the virus on premises that are infected (biocontainment), and (2) prevent the introduction of the virus via movement of personnel and materials to naïve livestock and premises (bioexclusion). Biosecurity measures will be implemented within 24 hours of the identification of an index FAD case, or as soon as possible. In FAD outbreaks, a biosecurity plan is created with information on the roles and responsibilities of key personnel, site security and safety, and biosecurity practices. A waiting period may be prescribed by Incident Command to ensure that response personnel wait a specified amount of time before traveling to a non-infected premises; personnel should not travel directly between Infected or Suspect Premises to unknown or non-infected premises. However, it is important to ensure a careful balance is maintained between facilitating response activities and ensuring personnel do not expose naïve animals and premises to the FAD.



Source: Dani Ausen, Andrew Kingsbury, Iowa State University

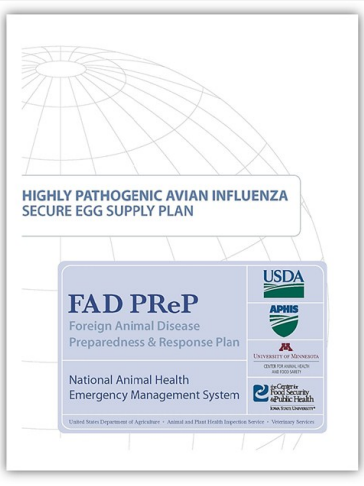
Quarantine and Movement Control

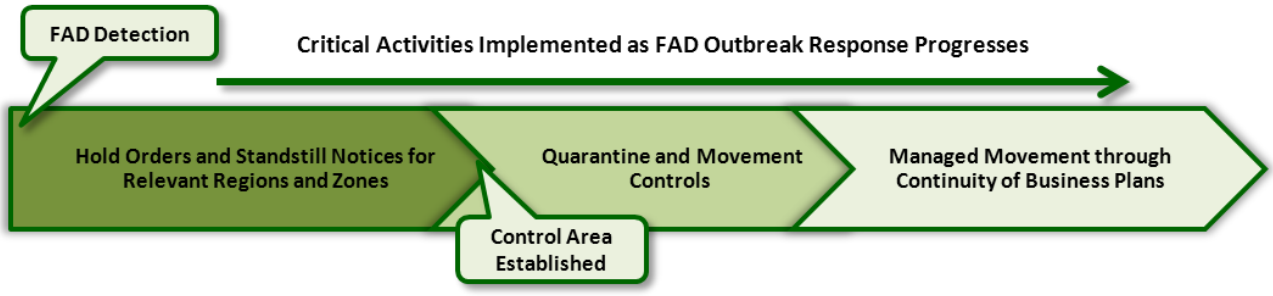
By restricting the movement of infected animals, animal products, and contaminated fomites, quarantine and movement control can be a powerful tool in controlling and containing an FAD outbreak. Transmission of an FAD can occur through infected animals, animal products, and fomites (e.g., equipment, vehicles, bedding, clothing). Immediately after the detection of an FAD, a regulatory Control Area, comprised of an Infected and Buffer Zone, will be established. Within this regulatory Control Area, Infected, Contact, and Suspect Premises are subject to individual premises quarantines; At-Risk and Monitored Premises are subject to movement control restrictions.

Quarantine and movement control will be implemented simultaneously with continuity of business plans, which facilitate the managed movement of non-contaminated animal products and non-infected animals without creating an unacceptable level of risk. At all times, consideration will be given to critical movements, such as feed trucks.

Continuity of Business

Outbreak control measures have a direct effect on the ability of a farm or food processor to continue key operations for production and distribution of food and products. As such, continuity of business planning focuses on the managed movement of non-infected animals and non-contaminated animal products that exist on non-infected premises within regulatory Control Areas. Plans are intended to maintain a continuous supply of animals and animal products to market and reduce negative economic consequences of stalled production. Continuity of business plans involve risk assessments, surveillance, biosecurity, and movement controls through permitting. The Secure Milk Supply, Secure Turkey Supply, Secure Pork Supply, Secure Broiler Supply, and Secure Egg Supply plans are in development.





Regionalization for International Trade

In the event of an FAD outbreak in the United States, international trade of animals and animal products may be adversely affected for a significant period of time. This would have serious economic implications for the affected industries, as well as the country as a whole. Regionalization is one possible way to facilitate the reestablishment of international trade as soon as possible after an outbreak. Regionalization is the concept of separating subpopulations of animals in order to maintain a specific health status in one or more disease-free regions or zones. This risk-based process, based on sound science, can help to mitigate the adverse economic effects of an FAD outbreak.

Mass Depopulation and Euthanasia

In an FAD outbreak, it may be necessary to depopulate animals on Infected Premises as soon as possible after FAD confirmation. Euthanasia or mass depopulation should be provided to the affected animals as safely, quickly, efficiently, and humanely as possible. In addition, the emotional and psychological impact on animal owners, caretakers, their families, and other personnel should be minimized.

APHIS recognizes that in a disease outbreak, it may be necessary to depopulate large numbers of animals quickly and efficiently with as much consideration given to the welfare of animals as practicable, given the extenuating circumstances.

Qualified personnel should perform mass depopulation using the safest, quickest, and most humane procedures possible, in accordance with guidance from the American Veterinary Medical Association.

Disposal

Proper disposal of animal carcasses and materials (e.g., bedding, manure, litter) is important for preventing or mitigating pathogen spread and containing, controlling, and eradicating the FAD. Disposal must be completed in a manner that does not allow the FAD to spread, that minimizes negative environmental effects, and conserves meat or animal protein if logistically supportable from a biosecurity standpoint. Local and state regulations must be observed or memorandums of understanding must be obtained to ensure disposal capability. Cost effectiveness and stakeholder acceptance must also be considered.

Cleaning and Disinfection

Many FADs can survive for extended periods of time on both organic and inorganic materials. Therefore, aggressive cleaning and disinfection measures may be necessary to control and eradicate the disease agent. All disinfectants used in an outbreak must be Environmental Protection Agency-approved; off-label use of disinfectants is illegal. If available personnel or materials are insufficient for cleaning and disinfection efforts, the Incident Commander can request contracted emergency support from the NVS.

Vaccination

Emergency vaccination can be an effective means of controlling the spread of disease. It can be used either in conjunction with depopulation or not. If vaccination is employed it may be necessary to use a vaccine with differentiation of infected and vaccinated animals (DIVA) capabilities, which is often necessary for proving disease freedom. Deciding to vaccinate will take into account economic factors, vaccine suitability, nature of the farm operation, species involved, extent and projected duration of the outbreak, resources available, and public acceptance.

National Veterinary Stockpile

Homeland Security Presidential Directive-9 established the NVS in 2004 to protect the nation's food supply by maintaining sufficient amounts of countermeasures capable of deployment against the most damaging animal diseases within 24 hours. NVS has contracted access to veterinary countermeasures, including vaccine, as well as contractor support for disposal, depopulation, and decontamination activities in an outbreak. Support can be requested through Incident Command. The surge response capacity of commercial responders is a response to the site in 24 hours, and 500-600 people within 72 hours.

Wildlife Management and Vector Control

In order to effectively contain, control, and eradicate an FAD in domestic livestock, the response effort must consider the role that wildlife may play. Wild animals may become exposed to the FAD, serve as a reservoir, or spread the disease to naïve domestic livestock, which may complicate emergency response. In the event that wildlife play a role in an FAD outbreak, APHIS will cooperate with other Federal, State, and Tribal agencies that have primary jurisdiction over wildlife. A wildlife management plan will be developed as soon as possible after identification of the index case in livestock, based on an assessment of the risk that wildlife poses for the transmission of the FAD to susceptible domestic livestock.

Animal Welfare

During any outbreak or incident, humane treatment of animals must be provided given the specific circumstances of the outbreak, particularly from the time animals are identified for destruction or vaccination activities until they are depopulated, euthanized, or slaughtered as prescribed by veterinary authorities of the affected States or Tribal nations.

Modeling and Assessment Tools

Models and risk assessments can give decision makers valuable insight in a response effort. During an outbreak, one or more multidisciplinary teams will be developed to perform risk assessments or other analyses as requested by the Incident Commander.

Appraisal and Compensation

The Animal Health Protection Act gives APHIS authority to establish and implement an indemnification program in the event of an FAD outbreak. Indemnity can be a key component of APHIS's disease control programs in that the promise of fair compensation for losses helps to ensure cooperation from the owners of affected livestock. Such cooperation is important for rapid disease control and eradication.

National Response Framework (NRF)

The NRF is a guide to how the Nation conducts all-hazards response. It describes specific authorities and establishes a comprehensive approach for responding to domestic incidents that range from serious but purely local events to large-scale terrorist attacks or catastrophic natural disasters. It builds in the National Incident Management System, which provides a consistent template for incident management. The NRF is available from http://www.fema.gov/emergency/nrf/.

National Incident Management System (NIMS)

NIMS, a companion document to the NRF, provides a systematic, nationwide, proactive approach guiding departments and agencies at all levels of government, the private sector, and non-governmental organizations. Its goal is to help these organizations work seamlessly to prepare for, prevent, respond to, recover from, and mitigate the effects of incidents, regardless of cause, size, location, or complexity, to reduce the loss of life, liberty, property, and harm to the environment. NIMS provides a core set of concepts, principles, procedures, organizational processes, terminology, and standard requirements. NIMS information is available at http://www.fema.gov/emergency/nims/.

Federal Emergency Management (FEMA) Regions